

have any figures from the pencil of our historical painters, unless they are six feet in height. The bull, the horse, and the antelope, presented three varying types of animals, each admirably adapted to its habits. This conception of the tall, the robust, and the middling, was eminently important in architectural forms, as adapted for proportion of symmetry. The Italian architects never discussed this view, but they verified its practice, as may be particularly observed in the works of the great master Palladio.

The different dimensions of apartments regulated by the five orders, as seen in the diagrams, were worthy of the student's attention, although seldom discussed. In these five openings were the sentiment of the tall, the middling, and the robust. The arches of the Coliseum were singularly wide, but the great length of the building diminished what would have been ugly and offensive in a narrow edifice, to a great beauty of proportion. The building at the corner of Moorgate-street and London-wall was remarkable. In the quadrangle form of the elevation a very tall and narrow doorway was placed, displaying an utter want of proportion and loss of dignity. Nottingham Castle, although a low building, possessed great dignity from the quadrate form of the spaces and windows. James Wyatt has given a good example of this effect in the powder magazine on the banks of the Serpentine, in Hyde-park. Tall lancet examples done a little is a departure from this principle: you cannot have dignity with the tall form in little, it must be quadrate to produce it. In porticoes Vitruvius gives the dimensions dogmatically, solely from practice, without any theory. The Italian schoolists, as we may call them, have left us works every way useful to be quoted, as those by Raffaele, Peruzzi, Vignola, and others. It would be a desirable study to discover, if possible, the secrets of their proportions—secrets only to be acquired by the study of their logical deductions: it is these secrets which are the wonders of Greek architecture. The secrets of Palladio's lightness, grace, and naturalness, appear to be the union of an inferior or lesser order with a larger one, the proportion of the lesser one being two-thirds that of the larger. This is the great feature of Palladio, a name profound and prodigious in architecture. Vignola's secret depends less on columnar gradation than in the gradation of windows, which are mostly small in comparison to his masses, as much as one to three or four. He employed larger entablatures than any previous master, and gave to all his buildings an appearance of massiveness and strength. The works of Raffaele are distinguished for order essentially, and for great energy. He often placed the orders on pedestals, both in his buildings and in his pictures. In apartments where columns are employed they very appropriately stand on pedestals, as when filled with company the columns are seen with their bases complete. Sansovino is a master greatly to be respected: we always must admire his *chef d'œuvre*, the library at Venice, where his secret appears to be his having placed an entablature above the second order, making the frieze enormous. The study of all these will expand our ideas and enrich our works. It is only a recent discovery that the Greeks did not place the axis of the columns perpendicular: by the slight inclination inwards they form a natural buttress. In all architecture this system must be observed.

According to Aristotle, magnitude and grandeur are the chief ends of architecture. This does not consist in dimension: for example, in St. Peter's, at Rome, the cherubs sustaining the piscina appear but of the natural size: when you come near them, you discover their colossal magnitude, weighing many tons. Is not this labour thrown away, without producing any result? The same applies to every part of St. Peter's: if the interior had been lower, it would have augmented the dignity: it is so lofty that it becomes small, though really vast. Longinus says, the worth of art is its skill in proportion. Therefore we are not to be discouraged by small buildings, for

we may achieve great triumphs in art on a small scale. In conclusion, I impress upon you that when you hear of a great reputation in art or science, you should put faith therein: seek for their secrets, and the labour will reward you.

DOCTORING DAMP WALLS.

This task seems to have sorely puzzled many of your readers, and I must confess that the receipts given to remove the evil are not satisfactory to my mind. Superficial linings, washes, coatings of "patience butter," cement, or asphaltic, cannot fully answer the required purpose, because they are laid direct upon the wall or walls which are acknowledged damp. To line or cover one side of a wall in the way named, is only to place it in a condition to become permanently more damp: as the wet which "seeps" at the exposed surface, and is evaporated, is retained beneath the impervious surface laid on, having no means of escape. In "this mottled, misty clime" of England, damp walls are very common, and as is well known, they are not merely disagreeable, but they are positively dangerous to health, and most destructive to fittings and furniture. To "batten" walls with timber, the usual practice in all good houses, is to make the best possible arrangement for rot and decay. Hollow walls, formed out of ordinary stone or brick, also in a measure fail, although a well-constructed hollow brick wall is in every respect to be preferred before timber battens. But to cure existing walls by means of a lining wall of common bricks, leaving an inner air space between the old and new work, would be not only most costly, but in many instances destructive of small rooms. The remedy I have to propose is a lining of hollow tiles or bricks, which need not occupy more than three inches in thickness of space, and yet when completed secure a dry inner surface. The tiles or bricks may be made by any ordinary field-tile machine, and they may be burned in any tile-kiln. The tiles need not be more than one quarter of an inch thick. The machine will make them of any sectional form. They would probably work best 12 inches long by 6 inches wide, and 3 inches deep, with one partition down the middle. Tiles or bricks of this kind may be made for 20s. or 25s. per 1,000, and 1,000 would cover 500 square feet of wall. They may be set in cement either vertically or in horizontal courses, and, where necessary, they may be secured to the solid wall by iron cramps or "hold-fast." With good cement these, however, will not be required. The inner face of the hollow tile may be plastered as on ordinary brick work. The "die" in the machine may, however, be made to score or groove the external surfaces of the hollow tiles so as to afford better hold to the cement and plaster.

The plan of doctoring damp walls now proposed is certainly as old as the Romans, and therefore, has "precedent" in its favour. The Rev. J. C. Bruce, in his great work, just published, upon the "Barrier of the Lower Isthmus," the Roman wall, which extended from the Tyne to the Solway,—at page 77, states—

"Pipes of lead are occasionally met with in the ruins of the stations, and pipes of burnt clay are of very frequent occurrence. They are not found in the wall, but on the site of the stations. One use to which the tiles have been put, has been the transmission of warm air throughout an apartment: the walls of one of the chambers of the 'baths,' at Hunsbury, were lined with them."

Now that the duty on bricks has been removed, we may surely emulate the Romans in the use of hollow bricks and tiles for purposes of dryness, ventilation, warmth, and endurance. Partitions, floors, and ceilings, may be constructed of hollow bricks, perfectly fire-proof, free from liability to rot, or to decay by worms, and be as light as if made of timber in the ordinary way, or even lighter. Where

* By reference, our correspondent will find that the scope of our own extra-professional article, "on doctoring damp walls," was expressly restricted, with a reservation in favour of more thorough measures, and also with a reference to those who have already professionally succeeded in our columns.

there is a subsoil naturally damp, hollow bricks may be laid beneath the floor, so as to secure perfect dryness; and means may also be taken to prevent annoyance from insects.

ROBERT RAWLINSON.

THE WINDOW-TAX AND TIMBER DUTIES.

THE removal of the tax on light and air, as proposed by Sir Charles Wood, will, in a sanitary point of view, do good, though fiscally be is merely taking it off one shoulder to lay it on to another by the imposition of a house tax, to which, moreover, we have other objections, as our readers are aware. The window tax will be totally repealed, but on the following erroneous compensatory conditions:—All houses not now paying window-tax, but of the annual value of 20l. or upwards, to pay two-thirds of the lowest window-tax, viz. 12s. All of the annual value of 20l. and upwards, now paying window-tax, to pay two-thirds of the amount now paid for window-tax. New houses to pay at the rate of 1s. in the pound on their annual value; but if they be occupied as shops, public-houses, or farm-houses, 9d. in the pound only. Should this arrangement be insisted on, all the old houses will soon be tenanted.—It is further proposed to reduce the duty upon foreign timber to one-half the present duty. At present the duty on sawn timber is 30s., and on hewn upwards 14s. The Chancellor therefore proposes to reduce the first duty to 10s., and the latter to 7s. 6d.

DURABILITY OF DRAIN PIPES.

HAVING recently seen in *THE BUILDER* some remarks on the efficiency and durability of tubular drains, will you allow the following remarks a corner in your valuable paper? First, their durability; and this will in some measure involve their efficiency. In deep drainage I need not say both should be made a matter of certainty on account of the expense incurred, more than when they lie nearer the surface. I alluded to this remark by having been recently called upon to examine part of a deep drain which had become inefficient from some cause, when I found, on removing the ground, the pipes were fractured the whole length of the shaft, namely, 12 feet. I mention the shaft because being a long drain, part was tunneled, and I have no doubt, had the whole been opened, it would have been found the same throughout, that is, in the different shafts: this leads me to doubt their durability, and also their efficiency in their present form; and if I am asked why, I answer,—their form is one objection, they have one end, namely the socket, sufficiently strong in appearance and in fact, so if some mode were contrived to make the other equally so, and the middle strengthened by a band or hoop so as to resist pressure, this would cost a little more, but I think the advantage would be more than commensurate to the cost. Why may they not be so formed as to drop into each other, so as not to disturb more than the one broken. The manufacturers should see to this. Cheap things in fact are not always so in fact.—A CLEAN WORKS.

THE GREAT HOSPITAL, MILAN.

THE engraving p. 122 represents the bay of the arcade surrounding the large centre court of the Great Hospital at Milan. The columns are of stone, but the entablatures and the arches, with the enrichments, are in terra cotta. The half-figures in the medallions over the columns are all illustrative of Scripture's history: the female figure in the lower medallion to the right is intended to represent the daughter of Herodias, with the head of John the Baptist in a charger. The whole of the figures and enrichments are beautifully modelled, and in excellent preservation.

This part of the hospital was built from the designs of Ricchini.

The windows in the upper story is comparatively modern, and is of stone, the blank wall being of brick stuccoed. The harmony of the colours is most pleasing, the same being of a warm gray, the stucco raw Sienna, and the brickwork a quiet unobtrusive red.

J. T. W.